

Practice Research on Generative Artificial Intelligence Assisted Junior High School English Reading Teaching

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Abstract

With the rapid development of modern information technology, especially artificial intelligence technology, technology enabled English teaching has become a new direction and pursuit of current English education. It not only provides English teachers with more accurate language knowledge and rich teaching resources, but also helps to improve students' learning efficiency and promote the implementation of English subject core literacy goals in the classroom. As a chat robot program based on natural language processing technology, generative artificial intelligence can recognize and understand the input text, output answers and feedback similar to human text in the form of text according to instructions and context, and realize meaningful dialogue and communication with users. This paper attempts to integrate generative artificial intelligence. It can be applied to high school English reading teaching. Combined with specific cases, this paper discusses the possibility of AI technology enabling English teaching, in order to provide experience for front-line teachers to carry out English reading teaching practice.

Keywords

Artificial Intelligence; Reading Teaching; Junior High School.

1. Introduction

In recent years, intelligent technologies represented by Artificial Intelligence (AI) have been driving a new round of educational transformation, demonstrating tremendous potential in empowering teachers and enhancing teaching through their integration into subject instruction (Chu&Li, 2022). And with the success of the 2024 World Conference on digital education, the application of generative artificial intelligence in education and the improvement of teachers' digital competency have received unprecedented attention (Xu&Lu, 2024). What's more, the junior high school English curriculum is gradually developing in the direction of intelligence, and has laid a good foundation for the establishment of effective classroom teaching mode. Also, the Compulsory Education Curriculum Plan (2022 Edition) emphasizes that we should "actively explore the change of learning environment and methods under the background of new technology" and "change the way of educating people and highlight practice". The English Curriculum Standard for Compulsory Education (2022 Edition) stresses the need to "promote the deep integration of information technology and English Teaching" and "encourage teachers to make rational use of and innovate in the use of digital technology and online teaching platforms to carry out online and offline integrated teaching". It can be seen that AI technology provides a new path for the deep integration of English teaching and information technology and the innovation of classroom teaching mode.

English reading course is an important position to improve students' reading ability, cultivate their reading habits, and improve their thinking ability and learning ability. It is also a course

type of great significance to achieve the core literacy goal of English discipline. However, there are still some problems in junior high school English reading class at this stage, which can not best meet the students' learning needs and realize its real value.

2. Problems in Junior High School English Reading Teaching

2.1. Lack of Teaching Resources

First of all, English textbooks are the main carrier for teachers to implement reading teaching. But junior high school English textbooks are not updated in time, which can not meet the needs of students in the information age who can't wait to keep up with the pace of the times and keep abreast of the latest information and information. Secondly, in the traditional junior high school English reading teaching, teachers just follow the book and lack the interpretation of the background knowledge, It will inevitably lead to the floating of reading teaching on the surface, which is not conducive to the cultivation of students' reading ability and learning ability, but also limits the development of their imagination and thinking ability.

2.2. Lack of Diverse Teaching Modes

The traditional teaching method of English reading is "indoctrination" (Peng, 2023). The traditional junior high school English reading teaching mode is that students read articles, draw unfamiliar vocabulary-teachers ask simple questions-students answer questions-complete reading teaching. The traditional reading teaching is superficial. It only teaches students simple language knowledge and understands the superficial meaning of the article. It can not realize the real value of English reading teaching, nor can it meet their learning needs. In such a simple and boring traditional reading class, students mechanically copy notes and answer simple reference questions, coupled with the lack of interaction between teachers and students, resulting in knowledge floating on the surface, learning ability and thinking ability can not be trained, so they gradually lose interest and enthusiasm in learning.

2.3. Lack of Personalized Reading

In junior high school English reading teaching, teachers often start from the textbook, design reading according to the reading text, and carry out reading teaching (Zang&Zhang, 2024). In this way, each student is facing the same reading materials, which is difficult to meet the personalized reading requirements. Obviously, the current classroom reading is not personalized reading. If teachers prepare reading materials according to the personalized characteristics of students in the whole class, the workload is very huge, so it is not easy to achieve. This is also the important reason why there is a lack of personalized reading.

3. Connotation, Roles and Functions of GAI

3.1. Connotation of GAI

From early semiotics to today's deep learning, AI has experienced many technological innovations, and each breakthrough has greatly promoted the enrichment of its connotation and the expansion of its application scope and ability. Relevant literatures believe that AI is a branch of computer science, which mainly researches and develops theories, methods, technologies and application systems for simulating, extending and expanding human intelligence. Artificial intelligence (AI) is a technology that uses machine learning, deep learning and other technologies to enable computers to simulate human intelligence and perform complex tasks such as perception, cognition, reasoning and decision-making, so as to optimize and individualize chemistry teaching and improve teaching effect and efficiency (Zang& Zhang, 2024).

3.2. Roles of GAI

Generative artificial intelligence, with its rich corpus and powerful interactive understanding and dialogue ability, has brought opportunities for solving teaching problems and innovating teaching patterns (Yang&Ding, 2024). In order to better select and use generative AI, we must correctly understand its role in education and teaching.

3.2.1. New Elements of Classroom Teaching

Generative artificial intelligence can be used as a new element in classroom teaching. It can not only strengthen the relationship between teachers, students, textbooks and other classroom teaching elements, but also inject new impetus into the reform of classroom teaching mode. Generative artificial intelligence can reduce the burden of teachers' conventional teaching activities, enable them to pay more attention to the personalized needs of students, and provide targeted guidance (Wen, 2024).

3.2.2. An Assistant in Teaching Activities

Generative AI provides unlimited possibilities for teachers' teaching activities, students' personality development and the extension of teaching materials. But in the initial stage of application, teachers can start from playing its auxiliary function to teaching activities. Generative AI can help improve the efficiency of teachers' lesson preparation and teaching. In the process of lesson preparation and teaching, teachers can use generative AI as a scaffold and resource library to help find teaching resources, generate teaching plan materials, and prepare teaching courseware. In short, as a tool, generative AI can help teachers improve the efficiency of lesson preparation and teaching, and save a lot of time for creative work.

3.3. Functions of GAI

3.3.1. Integration of Educational Resources

Leveraging artificial intelligence technologies to integrate various educational resources such as images, audio, video, and texts, thereby creating a rich and diverse repository of teaching materials. This provides teachers with convenient access to a broad range of resources for instructional purposes.

3.3.2. Personalized and Targeted Learning Resource Recommendations

Utilizing AI to analyze students' learning data, such as their learning styles and needs, to recommend appropriate learning resources and reading materials tailored to each student, thus enabling personalized learning pathways.

3.3.3. Intelligent Assessment and Feedback

Applying AI to evaluate and provide real-time feedback on students' reading performance. This allows students to promptly assess their learning progress, identify areas for improvement, and take corrective actions accordingly.

3.3.4. Creation of Virtual Interactive Environments

Using AI to create immersive virtual environments where students can engage in English reading and speaking exercises. This enhances the interactivity and engagement of learning, fostering a more enjoyable and effective learning experience.

4. Effective Strategies for Junior High School English Reading Teaching Supported by GAIC

4.1. Pay Attention to Discourse Structure and Cultivate Generalization Thinking

A teacher's strong ability to interpret texts is a crucial prerequisite for ensuring the effectiveness of instructional design. The judicious application of generative artificial

intelligence can assist teachers in better organizing the structure of a text, summarizing its main ideas, and synthesizing its content. It serves as a valuable tool in supporting teachers' scientific interpretation of texts. In the process of lesson planning, teachers can utilize generative artificial intelligence to interpret the reading text, and according to the interpretation results, focus on the structural design of the text, help students to understand the structure and deep meaning of the text through lexical generalization (that is, summarize the gist of a paragraph or the whole text through a word or phrase) on the basis of mastering the literal meaning of the text. Through this, teachers can present implicit thinking activities in the form of explicit word meaning, so as to cultivate students' general thinking ability. The steps of this phase are as follows: Teacher inputs reading text and instructions. Then GAI quickly presents results of text interpretation. And students answer questions by generalizing the word meanings. After that, teacher sets the main questions.

4.1.1. Appraise the Rationality of the Title

The title serves as the focal point of the article, highlighting its theme and pointing to the main idea. Teachers should guide students to use word-based summarization techniques to organize the structure of the text and grasp the main ideas of both the entire text and its individual paragraphs. Subsequently, students should be encouraged to focus on the title and, based on the information they have gathered, assess the title's appropriateness, examining how well the content aligns with the title. This process encourages students to make personalized judgments based on the content of the text.

For example, the text "Masters of Time" tells the story of watchmaker Wang Jin. The teacher uses generative artificial intelligence to interpret the structure of the text, which is organized into five aspects: an introduction of the character, the historical significance of watch repair, the successful moments of watch repair, the optimistic outlook on watch repair, and a reflection on the eternal value of watch repair work.

Based on this interpretation, the teacher sets the question: "Why does the author use the title 'Masters of Time' rather than 'Masters of Timepieces'?" The students are then asked to summarize the structure of the text using word-based generalization and to think critically about the appropriateness of the title. After discussion, the students conclude that the title "Masters of Timepieces" focuses only on the superficial information of the text—the fact that Wang Jin repaired watches—and it covers only part of the content. On the other hand, the title "Masters of Time" plays on the dual meaning of "time". It not only refers to Wang Jin's successful repair of timepieces, which represent time, but also reflects the deeper value and significance of his work in transmitting the craft to a new generation of watchmakers, thus connecting history and transcending time. Therefore, the title "Masters of Time" can better summarize the core message of the entire text.

4.1.2. Excavate the Deep Information of Text

English reading instruction should focus on cultivating students' cognitive abilities, guiding them to use word-based generalization techniques to synthesize and summarize the text or paragraphs, thereby engaging in a deeper processing of the content. Teachers should lead students, on the basis of understanding the detailed information in the text, to engage in close reading and critical thinking in order to uncover the deeper meanings of the text. Emphasis should be placed on the information and ideas conveyed within the text, with the aim of enhancing students' skills in both conceptual thinking and expressive competence.

For example, the main content of the fifth paragraph of the text "The Best Medicine" is as follows: During Laura's treatment, "I" use magic tricks to help her undergo a positive emotional transformation—shifting from fear and anxiety to relaxation and enjoyment, which also brings relief to Laura's parents. After uploading this paragraph to generative artificial intelligence, and the AI's interpretation of this paragraph is as follows: "Impact on the Patient and Family: The

text shows the gradual change in Lara's mood from pain and anxiety to relaxation and happiness due to the clown doctor's interventions. It also mentions the positive effect on Lara's parents, who become more relaxed seeing their daughter cheered up".

Based on the above interpretation, the teacher, in conjunction with the meaning of "Impact on the Patient and Family", can set the following question: "What is paragraph 5 mainly about?" Then, students can be guided to use word-based generalization to get the answer: "The impact of the clown doctor's work on the patient and family." This approach helps students clearly identify the main idea of the paragraph—"the positive impact of the clown doctor on the patient and their family"—and deepen their understanding of the significance and value of the clown doctor's work. By guiding students to discuss the title and think critically about the content using word-based summarization, the teacher helps students assess the appropriateness of the title based on the structure of the text. This process uncovers the deeper meaning of the text, fostering students' ability to think conceptually and ultimately leading to the effective enhancement of their higher-order thinking skills.

4.2. Use Paraphrasing Effectively and Enhance Language Proficiency

Language proficiency is a key component of the core competencies in English education. It refers to the ability to understand and express meaning through language in social contexts (Cheng&Zhao, 2016). Cultivating language proficiency is the core of English classroom instruction and an essential foundation for developing students' cultural awareness, cognitive abilities, and learning skills. Generative artificial intelligence is proficient in paraphrasing texts, generating summaries that are comprehensive, fluent, and easy to understand. This provides teachers with a rich source of teaching materials for enhancing students' language skills. Paraphrased texts typically avoid vocabulary beyond the students' current level, helping them gain a thorough understanding of key points and difficult aspects of the text. This also aids in mastering vocabulary and fosters the development of comprehensive language skills.

During the lesson planning phase, teachers can use generative artificial intelligence to paraphrase reading texts. In light of the analysis results, they can design questions focused on the text's details and key points, helping students correctly understand the challenging aspects of the text, accumulate and master relevant thematic vocabulary, and ultimately enhance their language skills. The steps for this process are as follows:

The teacher inputs the reading text and instructions into the GAI system. Instructions are "Please analyze the text from what, how and why aspects." or "Please pick up some complex or idiomatic sentences and paraphrase them into simpler English."

The system will quickly present the analysis results, including synonymous paraphrasing and substitution of difficult points and thematic vocabulary from the original text.

Teacher, based on the analysis results, sets comprehension questions or inferential questions. Students answer the questions using paraphrasing based on the context of the text.

4.2.1. Expanding Synonym Blocks

Vocabulary is the cornerstone of language, and the richness of vocabulary reflects the quality of a learner's use of words in language expression. It is an important indicator of students' language proficiency. Teachers can substitute synonyms for words in the original text within their questions, helping students accumulate thematic vocabulary blocks and enhance the richness of their vocabulary usage. This also aids students in correctly understanding and accurately expressing the content of the text by using synonyms in specific contexts, ultimately improving their language skills.

For example, the text "Good Book, Bad Movie?" uses phrases such as "books and the movies based on them", "books ... in the movie versions", and "great books ... when they move to the big screen" to express the concept of "adapting literary works into films". The teacher uses

instructions to drive the generative artificial intelligence to analyze the reading text from three aspects: what, why, and how, in order to obtain more relevant expressions such as “books are adapted into movies”, “the transition from book to film”, “the movie adaptations”, “translating literary works into cinematic experiences”, and “book-to-movie adaptations”. The teacher then uses these vocabulary items to formulate the question: “Why do some readers feel disappointed when books are adapted into movies?” This guides students, based on their understanding of the text’s details, to answer: “Because certain aspects, such as characters or settings, in the book-to-movie adaptations do not match with the way readers imagined them while reading the book.” By using synonym substitution (i.e., the underlined parts) in both the question and the answer, the teacher helps students, on the basis of correct comprehension of the text, focus on the accuracy and richness of language expression.

4.2.2. Acquire Language Knowledge

English reading instruction and language knowledge teaching complement each other, and the acquisition of language knowledge should be integrated throughout the reading lesson. The two should not be separated to avoid explaining language knowledge out of context. Therefore, teachers should guide students to focus on challenging vocabulary in the text and, in combination with the specific context of the passage, transform difficult content. By presenting simpler, easier-to-understand sentences, teachers can help students grasp the challenging points and acquire language knowledge.

For example, in “Reaching Out Across the Sea,” the author uses the phrase “These fleets were a sight to behold and were in a league of their own at that time” to describe the fleets as awe-inspiring and unparalleled. However, the phrases “behold” and “in a league of” are difficult language points that can hinder students’ understanding of the text. Using generative artificial intelligence, the teacher paraphrases this portion of the text as follows: “These fleets were amazing to see and were the best of their kind during that time.” Based on this, the teacher asks the following question: “What adjective can be used to describe these fleets?” This prompts students to, based on their understanding of the context, answer “amazing”. In doing so, students can better comprehend the unprecedented scale and equipment of the fleet, which indirectly reflects the power of China at the time and the advanced shipbuilding technology.

By guiding students to paraphrase the content of the text, the teacher not only helps expand their synonym blocks, enabling them to answer questions using varied and rich language, but also aids in explaining difficult points within the specific context of the passage. This facilitates the acquisition of language knowledge and contributes to the development and enhancement of students’ language proficiency.

4.3. Analyze Writing Techniques and Cultivate Appreciation Skills

The curriculum standards points out that teachers should guide students to identify and appreciate the stylistic features and rhetorical devices of the text, explore their connection to the thematic meaning, and infer and judge the underlying deeper meanings, thereby deepening their understanding of the theme. By utilizing generative artificial intelligence, teachers can accurately identify writing techniques in the text, explain their intended effects, and support reading instruction. This helps students perceive the artistry of language use, gain a deeper appreciation of linguistic beauty, and cultivate their awareness and ability to carefully select vocabulary to express their ideas.

During lesson planning, teachers can use generative artificial intelligence to identify and analyze the writing techniques in the reading text and their achieved effects. Based on the analysis, they can design questions to help students understand the author’s intentions behind word choice and sentence structure, infer the deeper messages conveyed through language, and appreciate the emotional power and artistic quality of the language. The steps in this process are as follows: the teacher inputs the reading text and the instruction “Please tell me

the writing techniques used by the author and their achieved effects” into the generative artificial intelligence system. The system will quickly present the analysis results, including the writing techniques and their effects. Then, the teacher uses the AI-generated analysis to design inferential questions, guiding students to identify and appreciate the writing techniques in the text and analyze and infer their effects in class.

4.3.1. Appreciate the Exquisite Use of Imagery

Descriptive imagery refers to the imagery created by the author when depicting scenes with emotion. Authors typically use straightforward descriptive techniques or rhetorical devices to organically combine intangible thoughts with tangible objects and moods, presenting the reader with both real scenes and emotionally rich atmospheres (Xia&Du, 2016).

For instance, the last sentence of the fourth paragraph in the text “Mother of Ten Thousand Babies” is: “At times she was even seen riding a donkey to faraway villages to provide medical care.” The generative artificial intelligence’s interpretation of the writing technique for this sentence is as follows:

Descriptive imagery:

Technique: Detailed descriptions like “riding a donkey to faraway villages” provide vivid imagery.

Effect/Purpose: Help readers visualize scenarios, making the narrative more engaging and painting a clear picture of Dr. Lin’s dedication and the challenges she faced.

Based on the analysis, the teacher sets the following question: “Why does the author mention Lin riding a donkey to faraway villages?” This guides students to focus on the writing technique in the sentence and come to the conclusion: “To make the narrative more engaging and paint a clear picture of Dr. Lin’s dedication and the challenges she faced.” The use of descriptive imagery not only encourages students to imagine the scene at the time but also helps them understand the deeper meaning behind the scene—the character’s work and her spirit of selflessness in helping others, even at great personal cost, enhances the reader’s admiration for her.

4.3.2. Appreciate the Beauty of Rhetorical Language

Rhetorical questions are often used to present arguments in the form of a question, encouraging readers to form independent opinions through analysis and self-reflection, rather than directly stating clear conclusions that would compel passive acceptance. This technique serves to emphasize key points and the expression of meaning.

In the eighth paragraph of the text “Little White Lies,” the author uses three rhetorical questions consecutively. For this, the teacher drives the generative artificial intelligence to analyze the writing techniques and their effects. That is: “The author uses rhetorical questions in the last paragraph to encourage critical thinking and reflection on the topic of white lies. In this context, the rhetorical questions aim to get the reader to thoughtfully consider how white lies may not be as harmless or justified as initially thought. It achieves the purpose of casting doubt on white lies and encouraging more honest communication through provoking self-reflection rather than didactic statements.” It is evident that the author uses the three rhetorical questions to provoke thought, illustrating the consequences brought about by lies.

Based on the above analysis, the teacher sets the following question: “What is the author’s purpose in raising the questions in the paragraph?” and appropriately adds the function of rhetorical questions. The teacher guides students to come to the conclusion, “To stress the importance of treating white lies with caution,” based on their correct understanding of the original text. By using rhetorical questions in this paragraph, the author encourages readers to critically think about and reflect on white lies, making them realize that even well-intentioned lies can lead to unforeseen consequences, thus advising readers to value honesty.

5. Conclusion

In conclusion, integrating modern information technology with education and teaching is an essential path for the development of education in the context of Chinese-style modernization (Wang, 2023).

Generative artificial intelligence demonstrates powerful interactive understanding and dialogue abilities. Teachers should combine learning with thinking, embracing generative AI with an open mindset and reflecting on how to shift their role from knowledge transmitters to facilitators and guides of student learning. Teachers should also explore the integration of “learning and application,” actively incorporating suitable AI tools into instructional design, classroom interaction, and after-school tutoring. This can offer more targeted teaching support based on students’ personalized needs. Additionally, teachers should explore “learning and innovation,” staying updated on the latest information technologies. By understanding the characteristics of generative AI, they can adjust their teaching methods to better innovate and apply AI-assisted teaching strategies, thereby enhancing students’ learning experiences.

However, it is important to note that artificial intelligence technology is not a “magic bullet” and cannot be applied in a one-size-fits-all manner (Wang, 2024). Excessive reliance on AI may lead to a loss of initiative and creativity in both teachers and students, resulting in a standardized and mechanized teaching approach, with a diminished flexibility and depth of interaction. Moreover, due to technical flaws and model selection, the information provided by AI may not always be accurate. This requires teachers to possess the ability to discern the authenticity of the information, to avoid passing on incorrect information to students, which could negatively affect teaching quality. Lastly, since students have different learning needs and levels, when using AI, teachers should adapt and integrate the information provided by the it according to the characteristics and needs of the students, ensuring that the teaching content aligns with their actual needs (Luo&Su, 2024). Therefore, it is important to carefully evaluate the content generated by generative artificial intelligence (Yuan&Tang, 2024). As teachers, we should be capable of automatically identifying and correcting language expression errors, as well as common sense mistakes, ensuring the accuracy, standardization, and effectiveness of classroom teaching content.

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